~~Confidential~~

Not for publication
For use within Farm Credit Administration only

3 0

POST-WAR ANALYSIS SERIES,

Agricultural Commodities,

3a 0

BEEF CATTLE: PROBABLE PRODUCTION AND DEMAND

Prepared by
Economic and Credit Research Division
under the auspices of the
Committee for Analysis and Planning of FCA Post-War Services

U. S. FARM CREDIT ADMINISTRATION
UNITED STATES DEPARTMENT OF AGRICULTURE

May 1944

56

Beef Cattle: Probable Production and Demand

Cattle numbers on farms and ranches in the United States reached an all-time high of 82.2 million head on January 1, 1944, exceeding the previous peak in numbers, January 1, 1934 by 7.8 million head or 11 percent. Despite unprecedented demands for beef for United States armed forces, for lend-lease to Allied Nations, and for United States civilian consumption, the number of cattle remaining on farms and ranches increased 4 million head or 5 percent during 1942 and 3 million head or 4 percent during 1943 after having reached a record high number at the close of 1941. Farm and ranch inventories of cattle on January 1, 1944 represented the highest number per capita of any year since 1923. Present all-time high numbers are the dominant factor in the beef cattle outlook for the next 4 or 5 years.

With number of cattle in the United States increasing during 1943 for the sixth successive year, an appraisal of the cattle situation appears desirable to determine whether United States cattle producers may again be approaching a post-war period with inventories of breeding stock larger than justified by probable post-war beef demand and may therefore face a period of costly liquidation as after World War I.

Recently various comments on the situation receiving some publicity have suggested that the unfavorable experience of the cattle industry following World War I may automatically be averted after the present war for one or more of the following reasons:

1. It has been asserted that present cattle numbers are not high on a per capita basis, or on the basis of probable increase in per capita meat consumption provided a hoped-for high level of industrial production is maintained.

2. High public debt may induce governmental action to maintain all commodity prices at levels higher than during the pre-war period, thus obviating the influence on cattle prices of a generally falling price level as occurred after World War I.

3. Extension of credit to devastated European nations may make it possible for them to purchase large numbers of cattle in the United States to reestablish their livestock production.

4. Post-war feeding of war-torn European areas may require enough increase in slaughter to reduce United States herds to a more normal level.

Not all of these views can be analyzed fully in the brief space available. However, an analysis of the probable volume of domestic and export demand for beef compared with the productive capacity of United States farms and ranches should serve to answer the questions whether present record high numbers of cattle are excessive, to what extent liquidation of breeding stock may prove necessary, and what turn such liquidation may take with respect to cattle prices and possible financial loss to producers.

At first thought the present large inventory of cattle may appear to be a source of additional food which is short of consumer demand in many parts of the world this year. However, a breakdown of total cattle numbers by classes reveals there is no surplus finished beef in sight during 1944, although serious market gluts of cattle in poor slaughter condition may develop if range and farm feed supplies should be further reduced by unfavorable weather. Of the 82 million cattle in the United States, January 1, 1944, one-half or 41 million are cows and heifers kept for milk which are not intended for slaughter, are not desirable slaughter animals, and cannot be readily fitted for slaughter by special feeding, even if the feed were available. Of the other 41 million head which are stock cattle not kept for milk, over 20 million head are breeding stock which make only fairly desirable slaughter animals and usually require a period of special feeding to be prepared for the slaughter market. The remaining 21 million head of stock cattle, consisting of $7\frac{1}{2}$ million steers and $13\frac{1}{2}$ million calves, are more readily convertible into beef, but even most of these require a period of feeding before they are ready for market. To complete this abbreviated classification, it should be mentioned that culled cows and veal calves from dairy herds as well as cows culled from beef herds all ultimately become a part of the total beef supply.

Fundamentally, the possible methods by which beef may be produced from cattle units may be briefly summarized and contrasted as follows: (a) feeding an ample ration of grain and concentrated feeds, or (b) utilizing grass and rough feeds alone or in varying combinations with restricted quantities of grain and concentrated feeds. To apply the first method to cattle of most ages and conditions as found on farms and ranches may require from 3 to 9 months. The second method, applied to average cattle on farms and ranches, may require, if started in the spring, from 6 months to 18 months or even longer.

Concentrated feeding is not applicable on a large scale in 1944 and probably will not be in 1945 because supplies of such feeds per unit of feed-consuming animals are indicated to be very short compared with recent years. Supplies of concentrated feeds may be short of demand for several years due to the difficulty of expanding their production with limited machinery and labor and to the many alternative uses of grains for food, industrial products, and feed for other classes of livestock including dairy cattle. The feed situation indicates that it will not be possible to reduce rapidly the present large cattle inventories by converting large numbers into slaughter beef by the process of concentrated feeding for 3- to 9-month periods. Neither is any important reduction in total numbers likely to occur during 1944 through widespread resort to the grass method of preparing cattle for the slaughter market. Figures on cattle numbers by classes, January 1, 1944, indicate that a program had not even been started on any large scale of devoting pastures and ranges more largely to beef production and restricting production of stocker and feeder cattle which is now excessive because of the feed situation. Slaughter beef cannot successfully be produced on grass when ranges and pastures are stocked in excess of normal carrying capacity or even if stocked at carrying capacity which might be considered normal for breeding stock and production of stockers and feeders.

As revealed in table 1, cows and heifers account for 44.7 percent of the total number of beef cattle. This proportion is higher than in any year since 1920 with the exception of 1934 and 1936 when it was only slightly higher or 44.9 (table 4). Numbers of those cattle more directly destined for beef, namely calves and steers, made up only 50.7 percent of total stock cattle, a lower percentage than in most years since 1920. Two areas normally supplying the larger part of total United States beef cattle production, the North Central States and the Western States, show similar high percentages of cow stock compared with earlier years. These data indicate that during 1944 United States farms and ranches may produce more feed-consuming and grass-consuming animals than for many years. It should be remembered that when cattle inventories become excessive relative to the supplies of range and pasture feeds and the available supplies of concentrated feeds, the excess numbers of cattle may not only add little to total market beef production, but they may actually curtail it.

Thus serious difficulties stand in the way of any simple solution of the immediate problem of too many cattle and too little beef. Sudden adjustments in production methods and volume of output easily possible in other types of industry are impracticable in the livestock industry. Also, it must be recognized that the cattle industry is in the hands of

Table 1

Cattle: Number on farms, January 1, and percentage distribution by classes of other than milk cattle, United States and selected areas, for selected years, 1920-44

Year and area[a]	Total all cattle	Cows, heifers, and heifer calves kept for milk	Other cattle	Other cattle, percent of total number by classes				
				Cows and heifers 1's up	Calves	Steers 1's up	Bulls 1's up	Calves and steers combined
United States:	(number in thousands)			(percent)				
1920	70,400	30,251	40,149	41.1	30.0	25.0	3.9	55.0
(low) 1928	57,322	31,090	26,232	43.8	30.1	20.8	5.3	50.9
(high) 1934	74,369	37,988	36,381	44.9	33.6	16.7	4.8	50.3
(low) 1938	65,249	34,774	30,475	43.5	33.0	18.2	5.3	51.2
(high) 1944	82,192	40,868	41,324	44.7	32.7	18.0	4.6	50.7
Western States:								
1935	11,591	3,358	8,233	55.4	28.1	13.5	3.0	41.6
(low) 1938	10,879	3,250	7,629	56.3	26.2	14.4	3.1	40.6
(high) 1944	13,800	3,855	9,945	55.6	27.7	13.8	2.9	41.5
No. Central States:								
1935	30,568	18,291	12,277	34.9	40.1	18.7	6.3	58.8
(low) 1938	29,062	17,342	11,720	32.6	37.3	23.8	6.3	61.1
(high) 1944	38,536	20,674	17,862	34.7	37.1	23.3	4.9	60.4

[a]The words "low" and "high" mark the years in which the cycle of January 1 cattle numbers reached its lowest and highest limits.

Data for 1944 are preliminary, and may not constitute the peak of the present cattle number cycle.

2 to 3 million independent farmers and ranchers to most of whom the cattle represent a principal capital asset and a principal or sole source of livelihood. To each operator must be accorded the privilege of managing his own enterprise to hold together his capital and his operating unit and to avoid financial loss by using his best judgment how this may be done in the face of difficult labor, feed, and supply situations.

Probable Demand for Beef

A study of annual per capita consumption of beef and of all meats under varying rates of industrial income per employed worker, 1910-43, may give some indication how much the volume of beef consumption might be expected to increase, given a high level of post-war employment and wage income, or how greatly consumption might decline if less favorable conditions prevail in post-war years. It must be remembered, however, that meat is a perishable product and normally all that is produced is consumed.

Although the early years of high-wage income periods have usually been reflected in increased consumption of beef and all meats, the general trend of consumption has been moderately downward in the past 3 decades as indicated in chart 1. In table 2, annual data have been grouped into periods of relatively low and high industrial wage averages. These data indicate, for example, that in 1921-22, income of industrial workers averaged 34 points below the 1919-20 average, yet consumption of

Table 2

Per capita consumption of beef and all meats, income of industrial workers, Wholesale Prices of All Commodities, United States, and Chicago Price of Beef Steers, Selected Periods 1910-1943

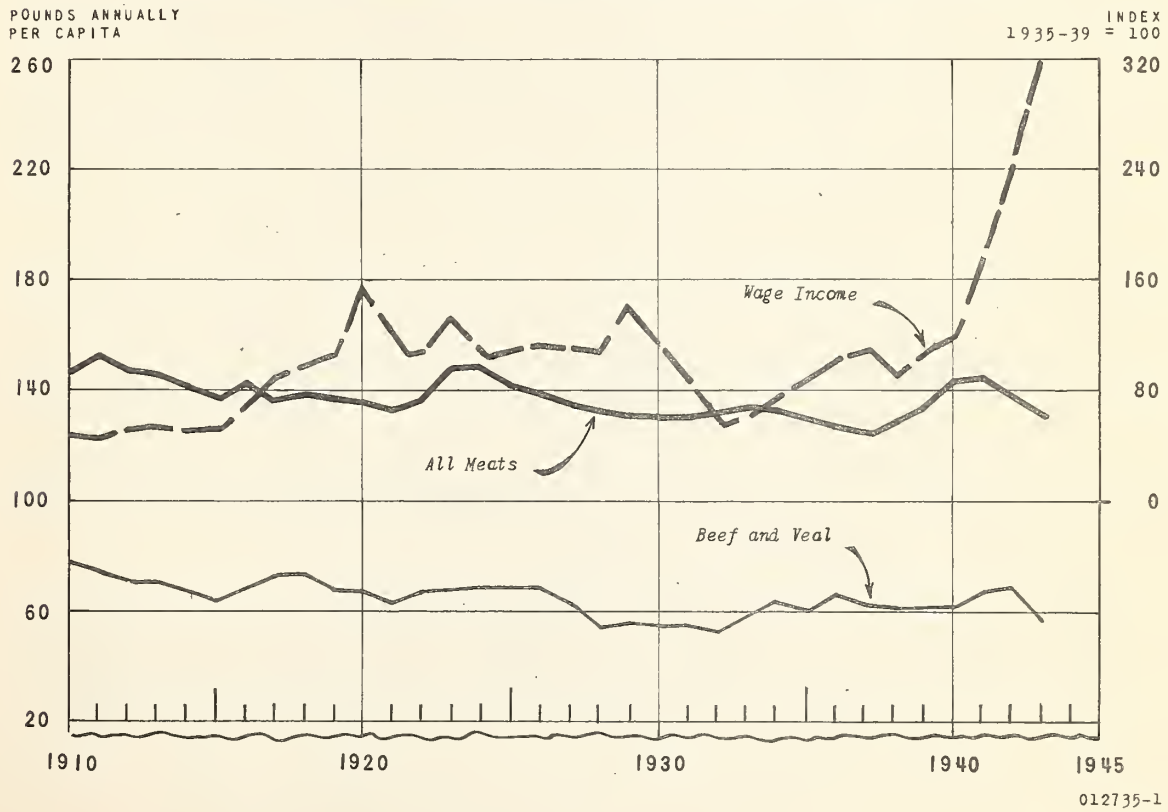
Year or period	Consumption all meats pounds per capita annually	Consumption beef & veal pounds per capita annually	Income of industrial workers 1935-39 = 100	Wholesale prices, all commodities 1926 = 100	Beef steers at Chicago[a] $ per 100 pounds	Steer price adjusted for changes wholesale price index
Averages						
1910-15	144.7	71.1	50	68.6	7.71	11.22
1916-18	138.8	70.5	91	111.4	11.92	10.71
1919-20	137.0	67.6	138	146.5	14.40	9.90
1921-22	136.2	65.2	104	97.2	8.42	8.68
1923-26	144.1	68.5	128	100.6	9.57	9.51
1927-30	132.2	57.3	125	93.4	12.41	13.26
1931-35	129.5	58.4	74	71.7	7.44	10.29
1936-40	131.3	63.4	106	80.3	9.97	12.42
Annual data						
1940	142.0	62.5	119	78.8	10.43	13.27
1941	[b]142.6	[b]68.6	169	87.0	11.33	12.98
1942	[b]137.3	[b]68.6	238	98.6	13.79	13.96
1943	[b]131.3	[b]58.7	315	103.1	15.30	14.84

[a]Beef steers from the Corn Belt, average of all weight groups.
[b]As revised by B.A.E. to exclude shipments to U. S. armed forces abroad.

beef declined only 4 percent and of all meats, 1 percent under 1919-20. During 1923-26 when the income index again recovered 24 points over 1921-22, consumption of beef increased 5 percent and all meats 6 percent as was to be expected. However, in 1927-30, although the income index declined only 3 points under the high 1923-26 level, beef consumption dropped 16 percent and all meats 8 percent. Again in 1931-35, although the income index dropped 51 points, beef consumption actually increased slightly and consumption of all meats went down only 2 percent. These figures do not include Government slaughter for drought relief 1934-35. It is thus apparent from the chart that while rising industrial income may tend temporarily to increase meat consumption, such increases have been within very moderate limits, have sometimes failed to materialize, and have sometimes tended to drop back to the generally downward trend of consumption before the high income period had run its course.

It should be noted that these data on pounds of meat consumed do not conflict with the generally admitted fact that consumer expenditures for meat do fluctuate with income, but in this section of the present discussion the primary concern is with volume of meat consumption rather than dollar expenditure of consumers. Since annual beef consumption has exceeded 70 pounds per capita only twice (1917 and 1918) in the past 30 years, and the general long-term trend of United States meat consumption per capita is downward, it does not appear safe to assume that domestic demand will absorb much more than the average of recent decades except

CHART I
CONSUMPTION OF BEEF AND VEAL, OF ALL MEATS, AND INDEX OF WAGE INCOME PER EMPLOYED INDUSTRIAL WORKER, UNITED STATES, 1910-43



at lower prices. On the other hand, in periods of business recession, annual per capita beef consumption has not dropped below 57 pounds in recent decades.

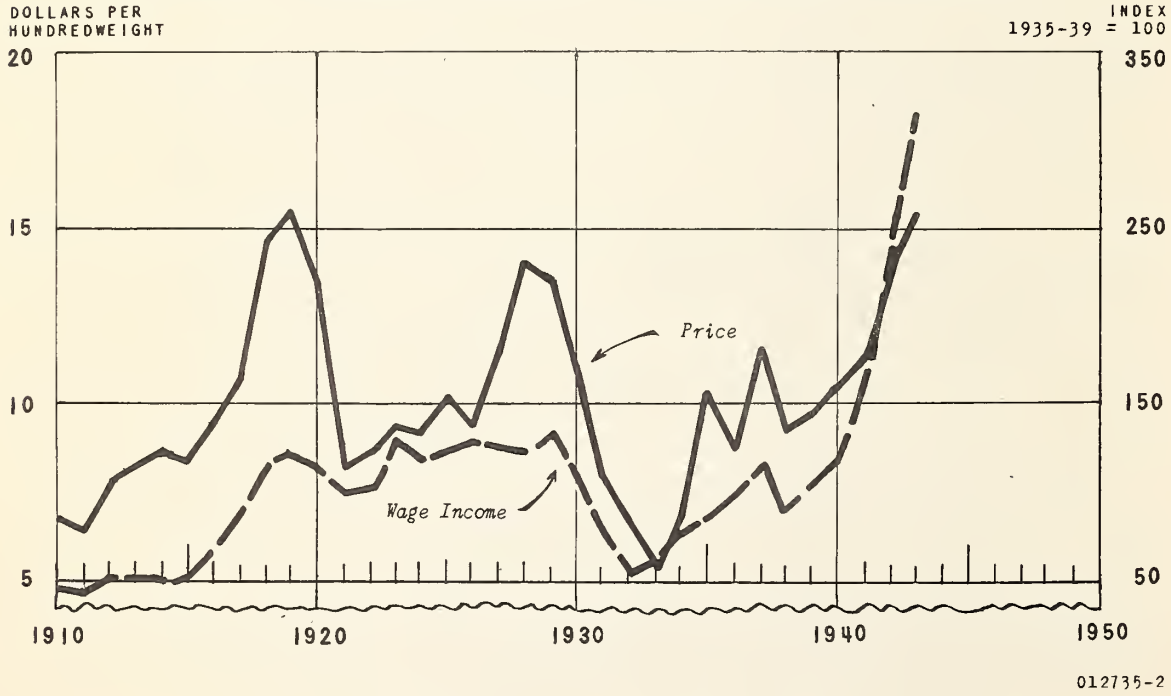
In recent decades average prices of market cattle have tended to be high during periods of high average wage income of industrial workers and to be low during low wage income periods, as illustrated in chart 2. The precipitate fall in cattle prices 1920-21 following World War I was, however, out of proportion to the 18 percent decline in wage income and apparently was due in large part to the high numbers of cattle accumulated on farms and ranches during the war period. Likewise the 1927-30 peak in beef cattle prices occurred without a corresponding rise in wage income largely because the number of cattle per capita was at very low levels and restocking of herds was further curtailing market supplies. These data suggest that although industrial prosperity may be maintained at higher than recent pre-war levels, the price of market cattle may again be severely depressed because the present accumulation of breeding stock on farms and ranches represents capacity to produce numbers of cattle in excess of normal annual slaughter requirements, with full allowance made for probable increase in population.

United States exports of live cattle and of beef in live cattle equivalent, 1922-41, averaged only a fraction of one percent of United States annual net cattle production.[1] In fact, imports of live cattle exceeded

[1]Net annual cattle production defined as number cattle slaughtered plus number added to January 1 inventory or minus number of decrease in the inventory.

CHART 2

PRICE OF BEEF STEERS, CHICAGO, AND INDEX OF WAGE INCOME PER EMPLOYED INDUSTRIAL WORKER, UNITED STATES, 1910-43



exports in all but 1 year of this period and in all but 2 years beef imports were greater than beef exports. Exports have been declining while imports have been increasing in importance as indicated by comparing two recent decades in the following tabulation:

Annual average excess of imports over exports, United States, selected periods, 1919-41

Period	Live cattle, thousand head	Beef, million pounds
Post-war I, 1919-21	358	[a]-168.4
Decade, 1922-31	234	36.3
Decade, 1932-41	381	55.6

[a]Represents excess of exports over imports.

Thus in the first 3 years after World War I, despite a record high number of cattle January 1, 1918, and rapidly falling domestic cattle prices, the United States imported annually over 1/3 million head of cattle more than it exported. It is true, some beef was exported in the post-war period but the excess of beef exports over beef imports equalled only 2.3 percent of total United States beef slaughter.

Export of live cattle for restocking war-depleted European herds involves a number of problems making it an undependable outlet for United States producers for disposal of surplus numbers. Purchasing power in the form of credit or cash may not be available to those European farmers who need replacement cattle. If they do have purchasing power they may decide other needs are more urgent, particularly tools, seeds, cereals for food and feed, etc. Breeds of cattle most familiar to Europeans from neighboring nations will probably receive preference over American cattle. More important than any of these considerations is the problem of feed for livestock in most European countries. Reports indicate that limited feed supplies in these countries have been a greater factor in forcing reduction of cattle numbers than the ravages of war or demand for meat.[1] There are indications that remaining cattle in most areas may be sufficient as base herds for restocking about as rapidly as feed production can be sufficiently increased to maintain larger numbers.

[1]See Journal of Farm Economics, XXVI, pp. 39-41, February 1944: Rehabilitation of Agriculture in German-Occupied Europe, by Einar Jensen.

Table 3

Number of cattle per capita, United States, number slaughtered, beef and veal production per capita and per head of cattle, and net production of cattle per 1,000 head January 1; annual averages for selected periods 1910-42 and annual data, 1936-43.

Year or Period	No. all cattle, U.S. Jan. 1 per 1,000 population July 1	Beef and veal production dressed wt., pounds per capita U. S. population[a]	No. cattle and calves slaughtered per 1,000 population	No. cattle and calves slaughtered annually (thousands)	Annual change in Jan.1 no. of cattle (thousands)	No. net cattle production per 1,000 cattle Jan. 1 [b]	No. calves born as a pct. of no. cows 2's up, Jan. 1	Beef and veal pro. dressed wt., pounds per head of cattle Jan. 1
Averages by periods[c]								
1912-17	625	70	202	20,092	2,894	370	-	113
1918-27	605	69	209	23,195	-1,572	325	-	114
1928-33	508	55	183	20,120	2,841	366	78	108
1934-37	543	63	[d]214	[e]27,267	-2,280	360	77	116
1938-42	524	65	189	24,959	2,773	400	83	124
Averages by decades:								
1910-19	640	73	212	21,008	1,141	350	-	115
1920-29	561	64	196	22,326	-940	336	[f]76	115
1930-39	527	59	[e]188	[e]23,860	719	368	78	113
Annual data:								
1936	530	66	202	25,905	-1,749	356	78	124
1937	513	61	198	25,558	-849	374	79	120
1938	503	61	186	24,128	780	382	80	121
1939	505	61	182	23,812	2,168	393	83	121
1940	517	62	182	24,061	3,264	401	84	120
1941	536	68	193	25,685	3,701	411	85	128
1942	558	73	201	27,108	3,952	413	85	130
1943	579	69	-	[h]28,000	3,078	-	-	[i]119
1944	[g]594	-	-	-	-	-	-	-

[a]Excludes Government slaughter, 8,281,000 head, 1934 and 1935; includes military uses 1941-1943.

[b]Number slaughtered, plus or minus change in inventory numbers, per 1,000 head at beginning of year; this is equivalent to number of calves raised minus death losses of cattle other than calves, per 1,000 head at beginning of year. In 1934 and 1935 there are included 8,281 thousand head cattle and calves purchased by the Government for drought relief.

[c]Years included in periods arranged to coincide with periods of expansion and reduction in cattle number cycle.

[d]Includes cattle and calves purchased by the Government for drought relief, 1934-1935. If these are excluded the average of 214 becomes 197.

[e]Includes cattle and calves purchased by the Government for drought relief, 1934-1935.

[f]Average for 1924-29 only. Earlier data not available.

[g]Highest number per capita in any year since 1923.

[h]Includes supplies for U. S. Military and Naval forces.

[i]Preliminary estimate.

Capacity to Produce Beef Cattle

Following this brief analysis of probable United States demand for beef and all meats, a similar analysis of the Nation's capacity to produce beef appears in order. Capacity to produce numbers of cattle which constitute the units or frames on which beef may be grown deserves first consideration. Table 3 indicates that net production of cattle numbers in the United States, number of calves raised minus death losses of mature cattle, in recent years 1940-42, respectively, has averaged 401, 411, and 413 head, per thousand cattle in the January 1 inventory. Net production in 6 recent years, 1937-42, averaging 396 per 1,000 annually, has been considerably larger than that of the 1910-19 decade, averaging 350 and the 1920-29 decade, averaging 336. The high rate of production for the years 1939-42 must of course be attributed in part to the prevalence over the country generally of ample pasture and range feeds, ample supplies of hay, grain, and protein feeds, and generally favorable weather. Nevertheless, an examination of annual data indicates a fairly steady upward trend from 1921 to 1942 in net cattle production. The number of calves born as a percent of cows 2 years' old or older on January 1 has increased rather steadily since the 1920's when calf crop data first became available on a national scale. In 6 years, 1924-29, the United States calf crops averaged 76 percent, while in the 6 years, 1937-42, calf crops averaged 83 percent which is 7 points or 9 percent greater than in the earlier period. Improved herd management, disease control, improved feeding, culling and selection of breeding stock, and improved quality of cattle all have contributed to the increased productive capacity of United States cattle herds. With net production averaging 368 per thousand during the 1930-39 decade which was below average both as to weather, feeds, and price incentive to producers, and in recent years averaging over 400, it may be assumed that a production of approximately 380 head per 1,000 might be maintained during average periods in the future.

In addition to estimating probable rate of production of cattle numbers, it is necessary to estimate what rate of slaughter beef production may be expected per head in the inventory. Annual production of beef and veal, dressed slaughter weights, per head of cattle on January 1, has averaged 124 pounds, 1940-43, according to figures in table 3. This may be compared with production of 113 pounds 1930-39, 115 pounds 1920-29, and 115 pounds 1910-19. These data and the averages by periods of cattle number expansion and liquidation, as well as the annual data 1936-43 indicate the rate of production is likely to continue relatively steady, that it may tend to increase moderately with continued improved production methods, and that at least it is not likely to decline substantially below the average of 114 established in 3 decades, 1910-39.

Number of Cattle Required

In the 1920-29 decade, United States beef consumption required an average annual slaughter of 196 cattle and calves per 1,000 human population (table 3) while during 1930-39 an average slaughter of only 188

head per 1,000 population was required even when numbers purchased by the Government in the special drought relief program are included in the average. In recent years, 1936-42, slaughter requirements have averaged 192 head of cattle and calves per 1,000 population. Allowing a liberal requirement estimate of 195 cattle and calves per 1,000 population, and assuming United States population figures will reach 140 million within a few years, average slaughter requirements may be estimated at 27.3 million head. At the net production rate of 380 head per 1,000 cattle, normal January 1 cattle inventory numbers needed to produce the required slaughter may be computed at just under 72 million head, or a full 10 million less than the record number of January 1, 1944, which it is now difficult to feed.

During 15 years, 1925-39, the number of cows, heifers, and heifer calves kept for milk has averaged 52.8 percent of all cattle and has not fluctuated widely from this average (table 4). With a requirement of 72 million head of all cattle estimated from the standpoint of meat

Table 4

Number of cattle on farms January 1, United States, number kept for milk, number of other cattle, and percentage distribution of other cattle by classes, annual data, 1925-44

Year	No. all cattle (thousands)	No. cows, heifers & heifer calves kept for milk (thousands)	Cattle kept for milk as a percent of all cattle	No. other cattle (thousands)	Number cattle Jan. 1 per 1,000 population July 1		Other cattle: percentage distribution by classes			
					Kept for milk	Other cattle	Cows & heifers 1's up	Calves	Steers 1's up	Bulls 1's up
1925	63,373	31,058	49.0	32,315	268	279	44.6	28.5	22.3	4.6
1926	60,576	30,856	50.9	29,720	263	253	44.3	28.2	22.7	4.8
1927	58,178	30,800	52.9	27,378	259	230	44.2	28.4	22.3	5.1
1928	57,322	31,090	54.2	26,232	258	218	43.8	30.1	20.8	5.3
1929	58,877	31,902	54.2	26,975	262	222	43.4	30.5	20.8	5.3
1930	61,003	33,080	54.2	27,923	269	227	43.0	31.8	20.0	5.2
1931	63,030	33,968	53.9	29,062	274	234	44.1	30.7	20.0	5.2
1932	65,801	35,365	53.7	30,436	283	244	44.5	32.0	18.3	5.2
1933	70,280	36,860	52.4	33,420	294	266	44.2	33.6	17.3	4.9
1934	74,369	37,988	51.1	36,381	301	288	44.9	33.6	16.7	4.8
1935	68,846	36,357	52.8	32,489	286	255	44.7	33.8	16.4	5.1
1936	67,847	35,452	52.3	32,395	277	253	44.9	32.6	17.4	5.1
1937	66,098	34,853	52.7	31,245	271	243	44.5	33.3	17.0	5.2
1938	65,249	34,774	53.3	30,475	268	235	43.5	33.0	18.2	5.3
1939	66,029	35,626	54.0	30,403	272	232	42.9	34.8	17.1	5.2
1940	68,197	36,412	53.4	31,785	276	241	44.0	34.3	16.6	5.1
1941	71,461	37,357	52.3	34,104	280	256	44.0	33.7	17.4	4.9
1942	75,162	38,812	51.6	36,350	288	270	44.3	33.5	17.5	4.7
1943	79,114	40,033	50.6	39,081	293	286	44.3	33.4	17.7	4.6
1944	82,192	40,868	49.7	41,324	296	299	44.7	32.7	18.0	4.6

production and allowing the 1925-39 average proportion of milk cattle to all cattle, there will be 38 million head of cattle kept for milk or .272 per capita in a population of 140 million. This ratio is nearly equal to the 1925-39 average of .274 cattle for milk per capita. Computations based on data in table 5, indicate that the total supply of dairy products from 38 million cattle kept for milk might be just a little short of United States needs except under such optimum feed conditions as prevailed generally in 1940-42. It should be considered that there will probably be a moderate increase in the consumption of dairy products as the consumption of meats shows a tendency to decrease. To make ample allowance for these considerations the estimated number of dairy cattle may be increased by one million head or about 3 percent bringing the estimate for normal January 1 numbers of all cattle to 73 millions for a future population of 140 millions. This is a number for which ample feed can be produced in most years and which can be maintained at least in fairly good condition in all but the worst general drought years experienced in recent decades.

In 1943, with 79.1 million cattle in the January 1 inventory, 33.7 million calves were produced. In 1944, with 82.2 million cattle, including a slightly larger proportion of non-dairy cattle, and a slightly larger proportion of breeding stock in the beef cattle herds the crop of calves will probably be 35 million head. If a normal death loss of 5 percent of the January 1 inventory is experienced, 1944 net production of cattle will approximate 31 million head, and cattle and calf slaughter for the year will have to equal that number if inventories on farms and ranches are to be no higher at the end of 1944 than at the beginning.

With manpower short in the slaughtering and packing industries and transportation facilities already burdened almost to the limit, it will be difficult to attain such slaughter volume, and it is doubtful that it can be exceeded, since it will represent an 11 percent increase over 1943 which, in turn, was 17 percent higher than our 1930-39 average and

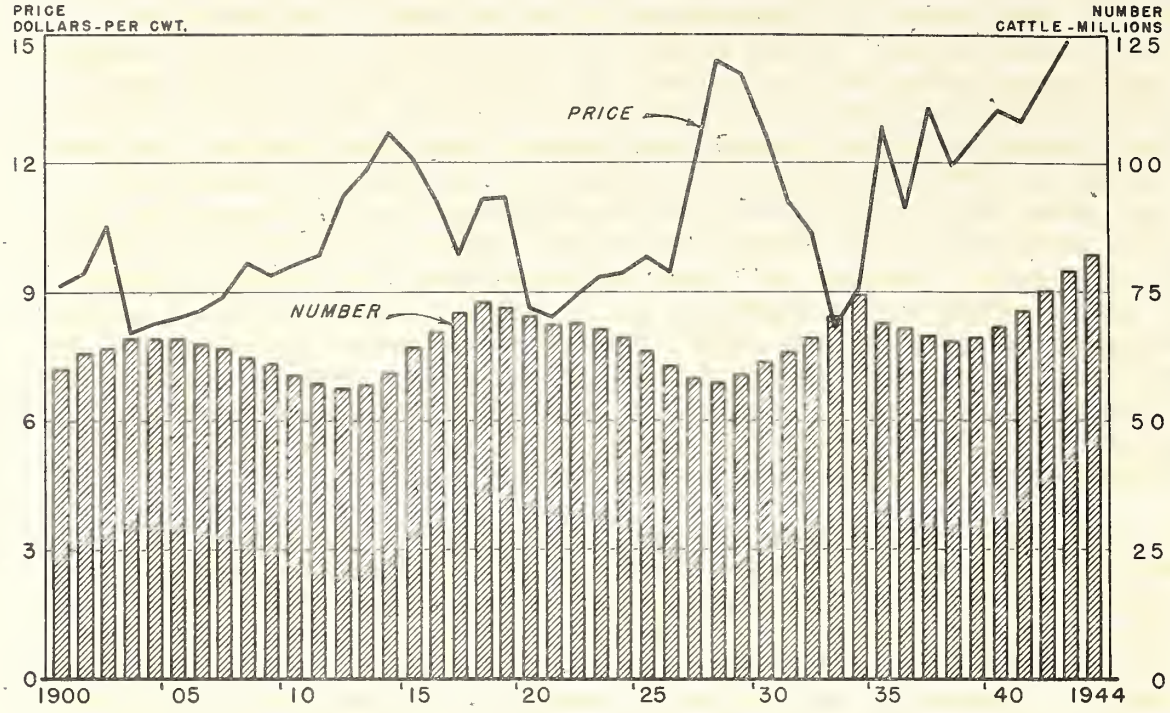
Table 5
Production and consumption of milk and milk products, United States, 1925-42

Year or period	Production		Cows in production, percent of total cattle kept for milk	Consumption, all dairy products, in milk equivalent, gallons per capita
	Milk gallons per producing cow	Butterfat, pounds per producing cow		
1925-29	516	174	69	94.1
1930-34	500	169	67	96.0
1935-39	512	174	66	93.8
1940	538	183	65	96.0
1941	551	188	65	95.2
1942[a]	551	188	65	100.7

[a] 1942 data are preliminary.

CHART 3

NUMBER OF CATTLE ON FARMS AND MARKET PRICE OF BEEF CATTLE, 1900-43*



*NUMBER OF ALL CATTLE ON FARMS IN THE UNITED STATES, JANUARY 1; ANNUAL AVERAGE PRICE OF BEEF CATTLE AT CHICAGO ADJUSTED FOR CHANGES IN PRICE LEVEL, 1926=100.

012735-3

the highest in our history. In 1934 nearly 30 million cattle and calves were slaughtered including 5 million head of those purchased in the special drought relief program. However, in that year the labor supply was ample and transportation facilities were operating at less than capacity. Unless drought or crop failure during 1944 enforces the beginning of a drastic cattle liquidation period, the cattle industry may face January 1, 1945, with an inventory of 83 to 85 million cattle or an excess of 10 to 12 million over normal needs for a number of years to come.

Cycles in Cattle Production and Price

Rather definite cycles of production and price are experienced in the cattle industry. Certain features of these cycles of particular interest to cattle producers are illustrated in chart 3 at the top of this page. Periods of liquidation of cattle numbers lasting 4 to 10 years accompanied and followed the periods of low market prices, 1903-06, 1920-22, and 1933-34.

Favorable market prices of 1912-14, 1927-30, and 1937-40 ushered in 6-year periods of restocking or building up numbers of cattle on farms and ranches. In the present period of all-time high cattle numbers, producers are concerned with the fact that the three previous peaks in numbers brought with them periods of extremely depressed market prices. It should be remembered in studying this chart that the price curve here

Table 6

Prices of specified classes of livestock, selected periods 1913-1943

Year or period	Western range cattle October Chicago	Stocker and feeder cattle Chicago	Beef steers from Corn Belt Chicago	Fat cows and heifers Chicago	Canner and cutter cows Chicago	Native veal calves Chicago	U. S. farm prices milk cows and heifers	Hogs, general average Chicago	Corn No. 3 yellow Chicago	Wholesale prices 1926 = 100	Income indus. workers 1935-39 = 100	Chuck roast, U. S., retail
	(dollars per hundred pounds)						(per head)	($ cwt.)	(¢ bu.)	(index numbers)		(¢ lb.)
Average												
1913-16	7.66	7.20	8.70	6.37	4.47	10.25	58.32	8.34		73	56	16
1917-20	11.35	9.61	13.76	9.07	6.25	15.36	84.12	16.14		135	120	25
1921-24	6.44	6.50	8.67	5.69	3.04	9.90	55.90	8.40		98	115	21
1925-30	9.31	8.79	11.55	8.07	4.94	12.42	75.95	10.54	89	96	126	27
1931-34	4.65	4.55	6.74	4.85	2.30	6.16	38.52	4.70	47	70	70	18
1935-38	7.77	7.35	9.98	7.59	4.22	8.99	53.27	9.32	80	81	99	24
Annual data												
1939	9.25	8.70	9.75	8.00	4.40	9.75	58.60	6.60	50	77	105	23
1940	9.50	8.95	10.43	8.20	4.80	9.75	61.00	5.75	63	79	119	23
1941	10.50	10.15	11.33	9.40	5.90	11.25	71.70	9.45	70	87	169	25
1942	12.25	11.70	13.79	11.50	7.85	13.25	89.68	13.80	83	99	238	29
1943	12.75	13.20	15.30	12.80	8.15	14.60		14.35	105	103	315	

used has been adjusted for changes in price level of all commodities and also that it represents the price of beef cattle which holds up better during periods of drought and feed shortage than does the price of stocker, canner, and cutter cattle. Most cattle which it becomes necessary to send to market when "stop loss" selling is under way are not in "beef cattle" condition, making the losses to producers during such periods even greater than indicated by the troughs in the price curve on this chart. Further indications of the low level at which various classes of cattle may sell for long intervals during periods of cattle number liquidation are presented in table 6.

Alternating periods of expansion and reduction of cattle numbers in the United States in the past half century are further analyzed in table 7. Periods of restocking or expanding farm and ranch inventories have averaged about 7 years in length and have added about 17 million head in numbers. The periods of liquidation have been less uniform, have averaged about 7 years in length and about 11.8 million head reduction in number. Changes in the farm value of cattle which accompanied the expansion and liquidation periods are shown in table 8. The periods of declining values have averaged 4 years and the amount of decline in

Table 7

Change in number of cattle on farms in the United States on January 1, 1896-1944

Year of lowest number each cycle	Lowest number millions	Number of years of increasing cattle numbers[a]	Increase in cattle numbers millions[a]	Year of peak in cattle numbers	Peak number millions	Number of years of decreasing cattle numbers[b]	Decrease in cattle numbers millions[b]
1896	49.2	8	17.2	1904	66.4	8	10.7
1912	55.7	6	17.3	1918	73.0	10	15.7
1928	57.3	6	17.0	1934	74.3	4	9.1
1938	65.2	6	17.0	1944	[c]82.2	-	-

[a] Following low year indicated in first column.

[b] Following the indicated peak year.

[c] On this line the 6 years of increasing numbers, 17.0 million increase and 82.2 million for the peak in numbers, are based on the assumption that January 1, 1944, will mark the limit of the present upswing, which may or may not be correct.

Table 8

Change in January 1 per head farm value of cattle in the United States, 1900-1943

Year of highest per head value each cycle	Value per head at peak	Number of years of declining value[a]	Amount of decline in value per head[a]	Year of lowest per head value each cycle	Value per head at low point	Number of years of rising value[b]	Amount of increase in value per head[b]
1900	$26.50	5	$8.11	1905	$18.39	14	$36.26
1919	54.65	3	24.26	1922	30.39	7	28.08
1929	58.47	5	40.69	1934	17.78	9	51.78
1943	69.56	-	-				

[a] Following high year named in the first column.

[b] Following low year named in the column at the left.

value per head had been 31 percent to 70 percent of the peak per head value. Periods of rising per head farm values of cattle have averaged 10 years in length. Peak values per head have been two to three times the preceding low ebb in values.

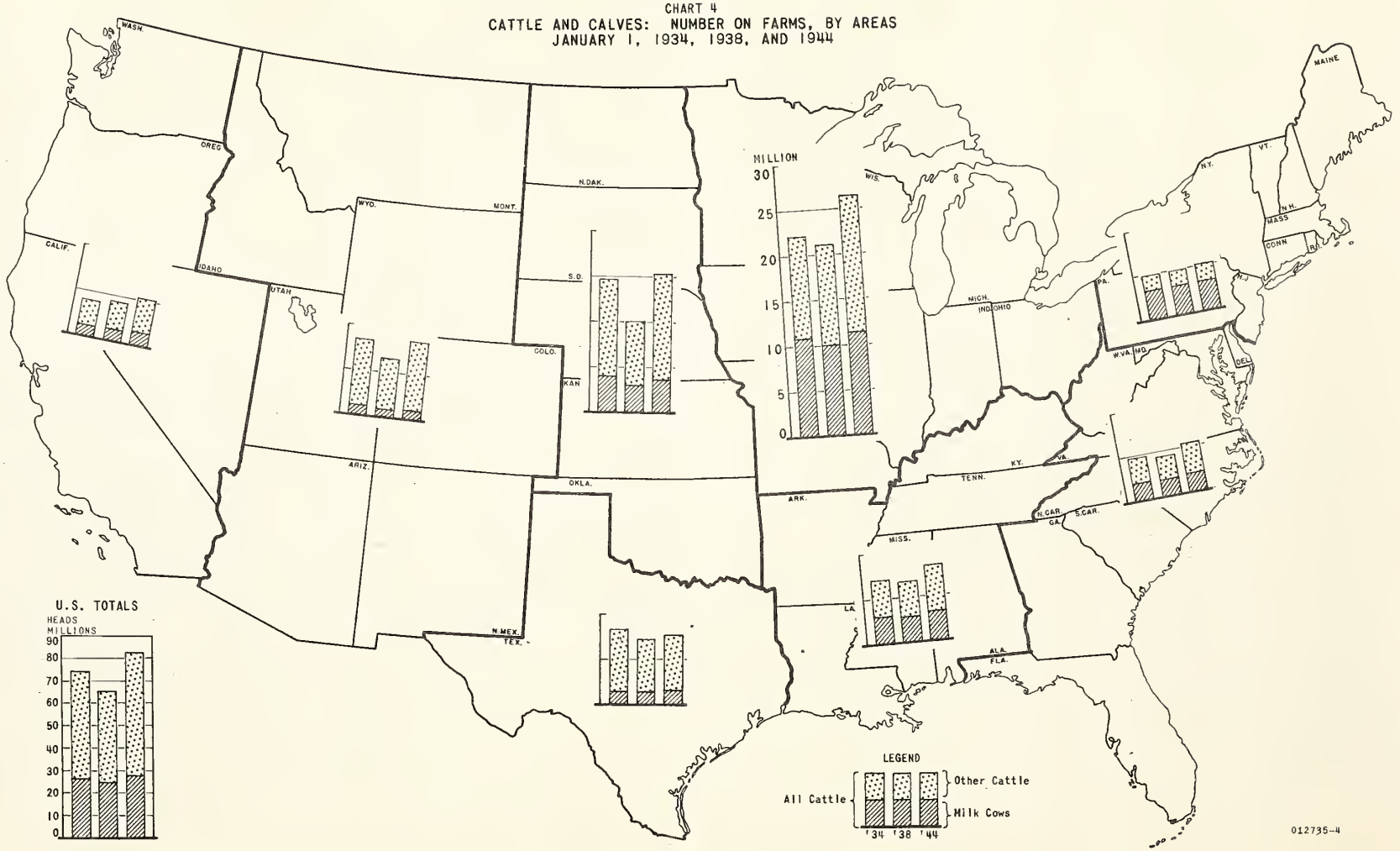
For the individual cattle producer these rather definite periodic fluctuations mean periods of favorable income alternating with periods when the beef cattle business is less profitable and operating losses may be incurred. The financial progress possible in the years of favorable production and price conditions can be used to advantage by the producer to reduce his debt and to bring his cattle inventory into the best possible balance with the facilities available to him on an economical basis.

Because of alternating periods of profits and losses experienced in the cattle industry, the individual producer has been urged, as a general policy, to reduce his debt burden during years of favorable income, rather than use net income for the purchase of real estate or other assets or for the expansion of cattle numbers beyond the normal carrying capacity of available range, pasture, hay and feed cropland, and other facilities. By thus improving his business and increasing his equity in it during the years of average and better-than-average production and price conditions, he will be able to survive the unfavorable years or periods of years in which profits may vanish and net financial loss is inevitable.

Cattle number liquidation, 1919-26, following World War I, was set in motion by rapidly declining cattle and beef prices aggravated by a rapidly deflating general price level in 1921 and was accelerated by frightened creditors because of heavy livestock loans and sinking collateral values. Value of collateral was to a much larger extent the basis of livestock credit in those days than now. In August 1919, the monthly average steer price at Chicago was $16.45. Thirteen months later, it still was $15.05 (September 1920). But in the following seven months it crashed to $8.15 (April 1921) and to $7.00 (December 1921). The liquidation beginning in 1934 set in motion by widespread droughts in range and pasture areas also came at a time of heavy livestock indebtedness and was severely aggravated by creditor pressure. Apparently the situation was saved from demoralization only by Government action in supplying a large volume of credit through the Emergency Crop and Feed Loan Office, the Regional Agricultural Credit Corporations, and the newly organized PCA system, as well as by the direct purchase by Government agencies of some 8 million head of drought-stricken cattle. Usually, in periods of liquidation, it is necessary because of lack of time or lack of feed to slaughter hundreds of thousands of cattle not in slaughter condition and hence at great loss to producers both by reason of low prices and by reason of low grades and low weights because the individual animal's potential poundage and potential grade could not be realized.

Fortunately for cattle producers, they now have an opportunity to liquidate excessive numbers at a relatively favorable price. During

CHART 4
CATTLE AND CALVES: NUMBER ON FARMS, BY AREAS
JANUARY 1, 1934, 1938, AND 1944



1944, prices of grass fat and stocker and culled cattle, barring widespread "stop loss" selling, may continue at two to three times the 1931-34 level. (See table 6.) However, individual producers will have this opportunity to liquidate excess numbers at favorable prices only because the majority will not get the urge to liquidate. If all caught the same idea, even the present lend-lease and civilian demand would not be enough to prevent a crash in prices of unfinished beef cattle; very little of the beef coming from the farms and ranges in such a liquidating program would meet Army requirements.

Liquidation of present excessive numbers will likely be much less aggravated by creditor pressure than any previous reduction period as farm indebtedness and livestock loans on the average are at low levels. Probably a larger proportion of cattle producers are free of livestock chattel mortgage debt than at any time in recent decades.

The reduction now in prospect, barring a major drought, will probably be initiated by the discovery of many producers in a number of localities that pasture and range with available supplemental feed will not support at a profitable producing level the number of animals with which they started the year, plus the year's calf crop. They will attempt to use up what grass they have to put surplus stock into best condition possible. When in 1944 or 1945 pastures begin to dry up in summer or early fall and a growing number of culled cows in only fair stocker flesh augments the seasonal heavy run of calves and steers off grass, prices of all stocker and feeder cattle, as well as canners and cutters, are likely to sag badly. A market slump in prices may cause other holders of excessive numbers to start an avalanche of "stop loss" selling. Since price "floors" as now in effect are optional with packer buyers and are made effective mainly through subsidies, packers may forego the subsidy if market supplies of low and medium grade cattle become so great that they can be bought substantially below the announced "floor" prices.

Table 9

Cattle and Calves: Number on farms, United States, by areas
January 1, 1934, 1938, and 1944

Area	Number, all cattle millions			Index numbers indicating relative change in number of cattle			Percent 1944 number milk cows and heifers 2's up
	1934	1938	1944	1934	1938	1944	
North Atlantic, 9 States	4.9	4.9	5.2	100	100	106	64
South Atlantic, 8 States	4.7	4.4	5.5	100	92	116	38
South Central (excl. Okla., Texas)	7.2	6.7	8.4	100	93	116	38
Texas	8.4	7.2	7.7	100	86	91	21
North Central (excl. Plains States)	22.1	21.1	26.4	100	95	119	43
Plains (incl. Okla.)	14.7	10.1	15.3	100	69	104	24
Mountain, 7 States	8.3	6.5	8.6	100	78	103	12
Pacific (incl. Nevada)	4.1	4.4	5.2	100	108	129	28
United States[a]	74.4	65.2	82.2	100	88	111	34

[a] Actual data. Due to rounding of numbers, the sum of the area figures in two columns varies slightly from this total.

If extensive liquidation of cattle numbers in the United States begins at some time during 1944-46 and runs its course during the succeeding 4 or 5 years some areas may experience only moderate reduction in cattle numbers while other areas may undergo more severe adjustments, as indicated by the history of other liquidation periods. In the 4-year, 1934-37, liquidation period, as shown in table 9, the Great Plains States of North and South Dakota, Nebraska, Kansas, and Oklahoma reduced numbers by 31 percent, seven States in the Mountain area made reductions of 22 percent, while the North Atlantic States made no change and four far-Western States actually increased numbers by 8 percent. However, cattle producers in all areas were subjected to sharp price declines for cattle marketed during the period, and many individual operators, even in the two areas undergoing no reductions, doubtless were affected by the generally pessimistic outlook prevailing in the early years of the period.

As illustrated in chart 4 from the figures in table 9, the North Central States, January 1, 1944, had the largest percentage excess over the 1934 peak, with the exception of the Pacific States. North Central inventories at the recent year-end were 19 percent higher than at their previous peak 10 years earlier. The largest increase from the 1938 low point was made by five Great Plains States, North Dakota through Oklahoma. While only 4 percent above their 1934 peak, numbers in these States, at the recent year-end, stood 51 percent higher than on January 1, 1938.

The foregoing analysis suggests the present period of expansion of cattle numbers and of high values per head may come to a close before producers generally begin an orderly reduction in cattle numbers in line with the feed producing capacity of range, pasture, hay, and crop land under their control.

Marketing of grass cattle this year as early as possible appears advisable in order to avoid the season of heaviest marketing and possible depressed prices should adverse weather conditions develop. The close culling of herds this year particularly breeding stock that is past its prime, also seems advisable as a contribution to the beef supply while war-time demands are still urgent and at prices which may later appear to have been highly favorable.

While cattlemen probably still have time to adjust to more normal numbers without serious financial loss, it does not appear advisable to delay too long in starting such adjustment.